

*Claims*

1 1. A helical scan transport apparatus for reading and writing data  
2 on to a magnetic recording tape which is wound on a supply reel rotatably  
3 mounted within a removable tape cartridge, wherein the tape has a leader  
4 block attached to one end for use in withdrawing the end from the tape  
5 cartridge, the transport comprising:

6 a chassis having a front end portion and a rear end portion;

7 an elevator assembly mounted on said chassis at said front end, said  
8 elevator assembly configured to receive the tape cartridge and to position the  
9 tape cartridge in a loaded position;

10 a take-up reel assembly coupled to said chassis at said rear end portion;

11 a helical deck mounted on a central portion of said chassis between  
12 said elevator assembly and said take-up reel assembly, said helical deck  
13 including a rotary read/write head, a substantially linear tape loading path  
14 between said elevator assembly and said take-up reel assembly, and a movable  
15 guide for seizing the tape from said tape loading path and for at least partially  
16 wrapping the tape around said rotary head; and

17 a linear threading mechanism configured to grasp the leader block of  
18 the tape, thread the tape through said tape loading path of said helical deck,  
19 and couple said leader block to said take-up reel assembly.

1 2. The helical scan transport apparatus of claim 1, wherein said  
2 helical deck is from a Panasonic Model D350 digital video cassette recorder.

3 2. The helical scan transport apparatus of claim 1, further  
4 comprising a supply reel drive assembly co-located with said elevator  
assembly, said supply reel drive assembly configured to couple with the  
supply reel of the cartridge and to rotatably drive the supply reel.

1 <sup>3A</sup> The helical scan transport apparatus of claim <sup>2</sup> 3, wherein said  
2 take-up reel assembly comprises a take-up reel and a servomotor coupled to  
3 said ~~take-reel~~. <sup>take-up reel</sup>

1 5. A helical scan transport apparatus for reading and writing data  
2 on to a magnetic recording tape which is wound on a supply reel rotatably  
3 mounted within a removable tape cartridge, wherein the tape has a leader  
4 block attached to one end for use in withdrawing the end from said tape  
5 cartridge, the transport dimensioned to fit within a rectangular enclosure  
6 measuring approximately twelve and one-half inches wide by twenty-six and  
7 one-half inches deep and configured such that a plurality of the transport  
8 apparatuses may be stacked within the enclosure with a vertical spacing of  
9 eleven inches on center, the transport apparatus and enclosure for use with a  
10 Storage Technology Corporation Model 4400 automated cartridge system, the  
11 apparatus comprising:

12 a chassis having a front end portion and a rear end portion, said front  
13 end portion extending seven inches outward from the enclosure and configured  
14 to mate with the 4400 automated cartridge system when said enclosure is  
15 coupled to a housing of the 4400 automated cartridge system;

16 an elevator assembly mounted on said chassis at said front end, said  
17 elevator assembly configured to receive a tape cartridge from the 4400  
18 automated cartridge system and to position the tape cartridge in a loaded  
19 position;

20 a take-up reel assembly coupled to said chassis at said rear end portion;

21 a helical deck mounted on a central portion of said chassis between  
22 said elevator assembly and said take-up reel assembly, said helical deck  
23 including a rotary read/write head, a substantially linear tape loading path  
24 between said elevator assembly and said take-up reel assembly, and a movable  
25 guide for seizing the tape from said tape loading path and for at least partially  
26 wrapping the tape around said rotary head; and

27 a linear threading mechanism configured to grasp the leader block of  
28 the tape, thread the tape through said tape loading path of said helical deck,  
29 and couple said leader block to said take-up reel assembly.

1 6. The helical scan transport apparatus of claim 5, wherein said  
2 helical deck is from a Panasonic Model D350 digital video cassette recorder.

c 1 ~~5A~~ 48. The helical scan transport apparatus of claim ~~6~~<sup>48</sup>, further  
2 comprising a supply reel drive assembly co-located with said elevator  
3 assembly, said supply reel drive assembly configured to couple with the  
4 supply reel of the cartridge and to rotatably drive the supply reel.

a 1 ~~6A~~ 5. The helical scan transport apparatus of claim ~~1~~<sup>5</sup>, wherein said  
2 take-up reel assembly comprises a take-up reel and a servomotor coupled to  
3 said ~~take-up reel~~<sup>take-up reel</sup>.

1 9. A helical scan transport apparatus for reading and writing data  
2 on to a magnetic recording tape supplied in a 3480-style cartridge, the  
3 transport comprising:

4 a chassis having a front end portion and a rear end portion;

5 an elevator assembly mounted on said chassis at said front end, said  
6 elevator assembly configured to receive the 3480-style cartridge and to  
7 position the 3480-style cartridge in a loaded position;

8 a take-up reel assembly coupled to said chassis at said rear end portion;

9 a helical deck mounted on a central portion of said chassis between  
10 said elevator assembly and said take-up reel assembly, said helical deck  
11 including a rotary read/write head, a substantially linear tape loading path  
12 between said elevator assembly and said take-up reel assembly, and a movable  
13 guide for seizing the tape from said tape loading path and for at least partially  
14 wrapping the tape around said rotary head; and

15 a linear threading mechanism configured to grasp a leader block of the  
16 3480-style cartridge, thread the tape through said tape loading path of said  
17 helical deck, and couple said leader block to said take-up reel assembly.

1 10. The helical scan transport apparatus of claim 9, wherein said  
2 helical deck is from a Panasonic Model D350 digital video cassette recorder.

1 8 11. The helical scan transport apparatus of claim 10, further  
2 comprising a supply reel drive assembly co-located with said elevator  
3 assembly, said supply reel drive assembly configured to couple with the  
4 supply reel of the cartridge and to rotatably drive the supply reel.

1 9 12. The helical scan transport apparatus of claim 11, wherein said  
2 take-up reel assembly comprises a take-up reel and a servomotor coupled to  
3 said ~~take-up reel~~ <sup>take-up reel</sup>.